

(No Model.)

F. FOURK.

# MECHANISM FOR CONVERTING MOTION.

No. 397,520.

Patented Feb. 12, 1889.

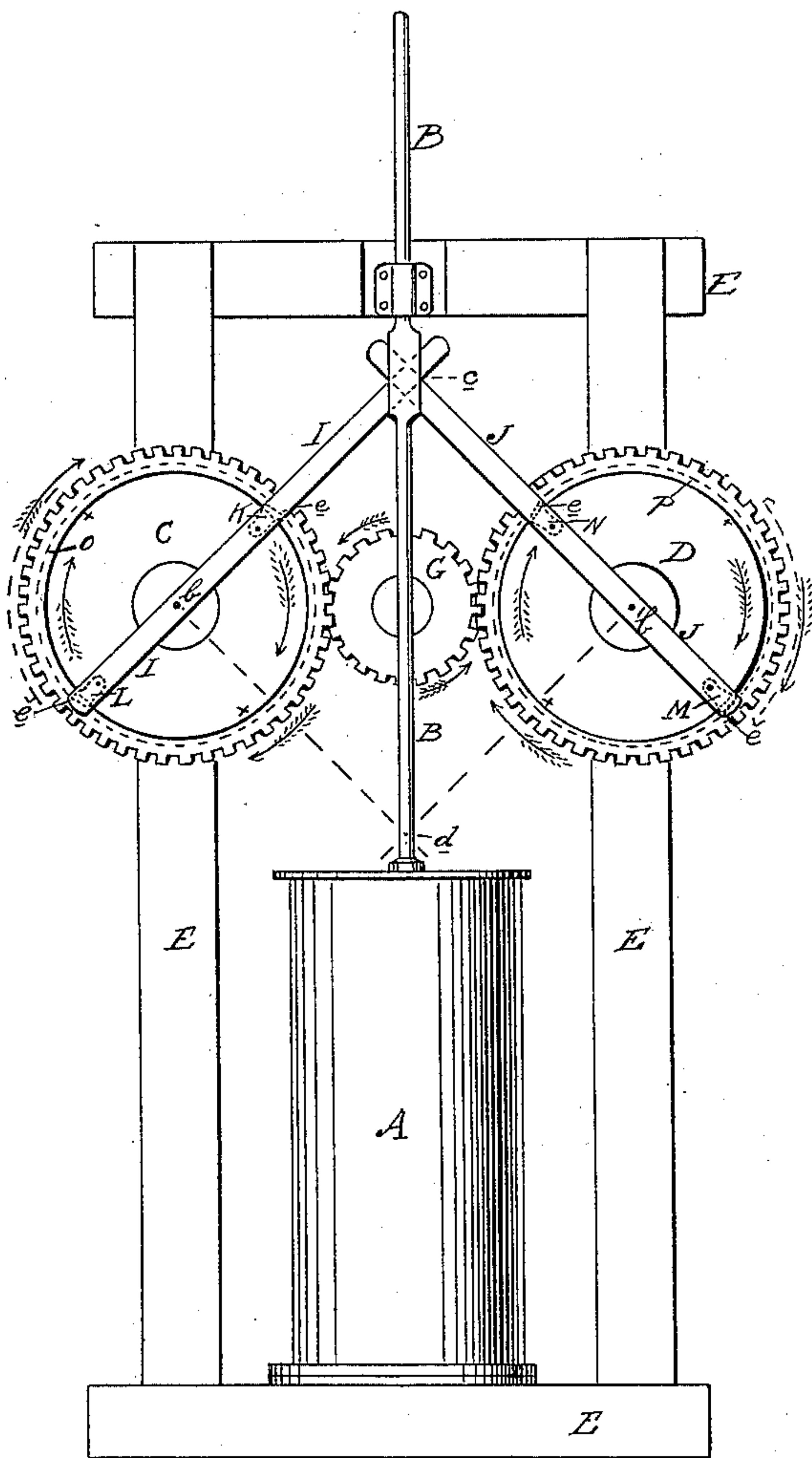


Fig. 1.

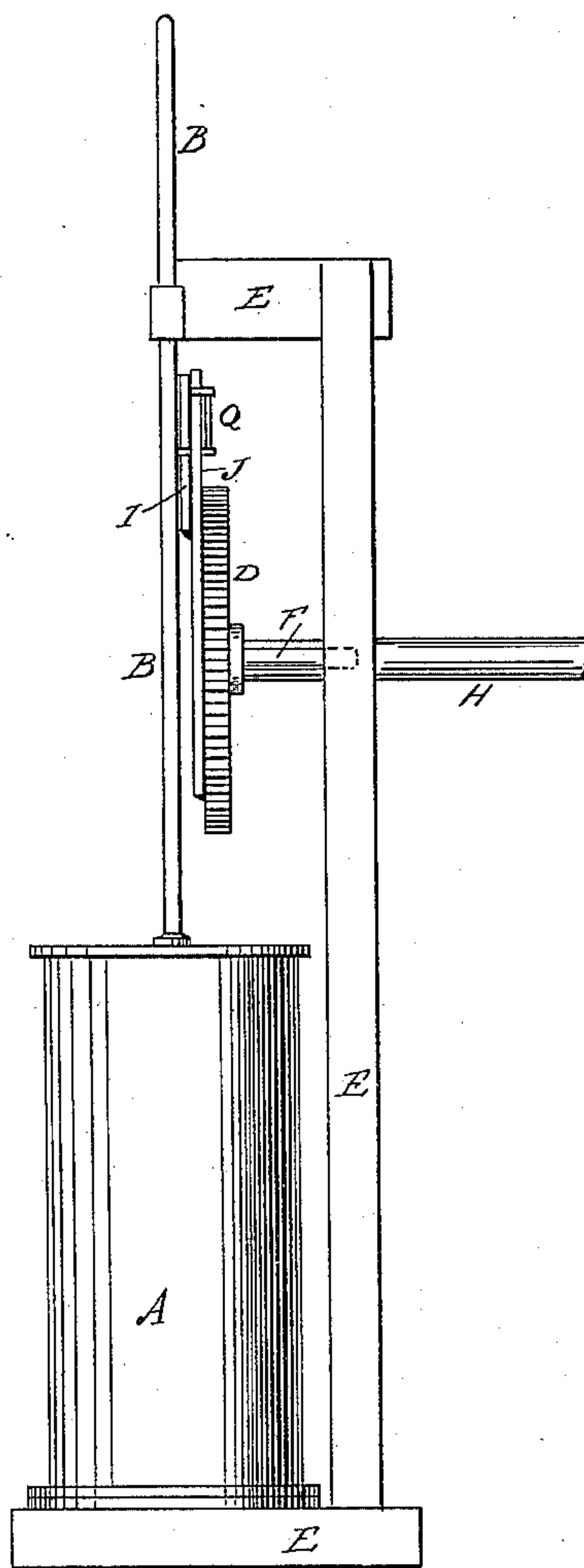
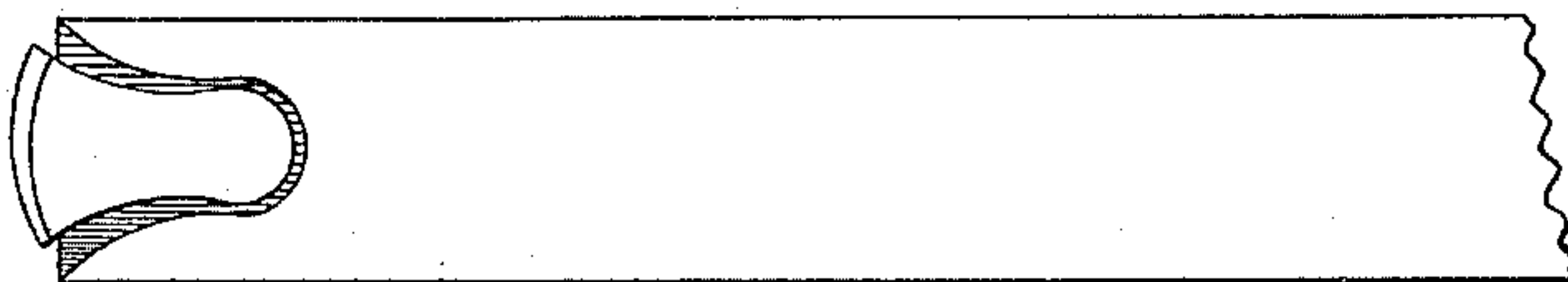


Fig. 2.

Fig. 3.



WITNESSES

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# UNITED STATES PATENT OFFICE.

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## MECHANISM FOR CONVERTING MOTION.

SPECIFICATION forming part of Letters Patent No. 397,520, dated February 12, 1889.

Application filed January 13, 1888. Serial No. 260,649. (No model.)

*To all whom it may concern:*

Be it known that I, FRANCIS ROURK, M. D., a subject of the Queen of Great Britain, residing at London, in the county of Middlesex and Province of Ontario, Dominion of Canada, have invented certain new and useful Improvements in Mechanism for Converting Motion; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to mechanism for imparting rotary motion from a reciprocating part—such as the piston-rod of a steam-cylinder; and it consists in the combination of devices hereinafter described and claimed.

The accompanying drawings clearly illustrate my invention, Figure 1 being an elevation or face view of my improved mechanism for converting motion; Fig. 2, a side view of the same, and Fig. 3 a detail of clutch.

A is the steam-cylinder, and B the piston-rod, both of ordinary construction.

C D are two spur-wheels revolving on short shafts F, having bearings at any suitable point, as in frame E. Between these spur-wheels and engaging therewith is a pinion, G, which communicates motion to the main shaft H, usually being keyed to the end of said shaft. Rotary motion is imparted to the pinion by the spur-wheels, which are operated by arms I J, separately pivoted freely to the centers of the spur-wheels C D, and having their farther ends received in socket Q on the piston B, so as to participate in its upward and downward motion. Friction-clutches (marked K L M N, Fig. 1) or any other suitable device will be attached to the arms so as to bear upon rims O P, formed on the faces of the spur-wheels, the result being that as the arms rise and fall with the motion of the piston-rod from the point c to d the clutches or other bearings on the arms bite alternately against the rims on spur-wheels, causing the latter to revolve in the same direction, and imparting an opposite rotary motion to the pinion G on

the shaft H. Thus when friction-clutches of the shape shown more particularly in Fig. 3 are employed the eccentricity of their edges or faces being in the line of motion will cause them to bite on the rim of wheel C when the arm I is descending, while the clutches on the opposite arm, J, will move freely without biting against the rim of wheel D. When the piston-rod rises, the action of the two sets of clutches is reversed, the pair on arm J biting, while the pair on arm I are free, and the same alternate action applies to whatever device may be used for imparting motion to the spur-wheels.

It will be seen that the movement of the clutches or other devices on arms I J in each case extends only over an arc of the circles of the wheels C D, (as shown by the dotted lines and arrows on the outside of those wheels.) This arc covers the area of freest movement, and in no case does it pass the "dead points" or centers at top and bottom, and thus all loss of power or risk of stopping on a center is prevented.

To allow of reversing the motion of the engine, a second cylinder will be provided having apparatus attached thereto wherein the action is the reverse of the other one.

I do not claim the clutches as new in themselves, but select them as means of illustrating one of the methods I use for imparting motion to the spur-wheels.

Having thus described my invention, what I claim as new is—

The combination, with a piston, a shaft, and a pinion thereon, of spur-wheels engaging said pinion on opposite sides, arms connected to the piston-rod and pivoted to the spur-wheel centers, and devices carried by said arms to engage and partially rotate each spur-wheel alternately, substantially as described.

FRANCIS ROURK. [L. s.]

Witnesses:

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